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(54) Title: BOUNDARY-SPLINE-WAVELET COMPRESSION FOR VIDEO IMAGES

(57) Abstract

A method and apparatus for performing video image compression and decompression are disclosed. The video image compression is performed using boundary-spline-wavelet decomposition, in which the wavelets applied to sample locations at the boundaries of image intervals are different from those applied to sample locations within the intervals. The decomposition is performed first for horizontal rows of the image data, and then in a vertical direction upon the results of the first decomposition. Quantization serves to locally round off the higher frequency components of the decomposition, and the decomposition is repeated until the desired compression ratio is obtained. Lossless compression may then be applied to the decomposed image data, and the compressed image is transmitted or stored, depending upon the application. Decompression is effected by lossless decompression of the received data, followed by reconstruction of the image using boundary-spline-wavelets, repeated as necessary to fully reconstruct the image. The reconstructed image can then be displayed on a conventional video display.

